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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.             | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------------------|------------------|
| 10/517,750   | 06/10/2005  | Wolfgang Clemens     | 411000-122                      | 6074             |
| 7590<br>Carella Byrne Bain Gilfillan<br>5 Becker Farm Road<br>Roseland, NJ 07068 | 02/22/2007  |                      | EXAMINER<br>HO, HOANG QUAN TRAN |                  |
|  |             |                      | ART UNIT<br>2818                | PAPER NUMBER     |
| SHORTENED STATUTORY PERIOD OF RESPONSE   | MAIL DATE   | DELIVERY MODE        |                                 |                  |
| 3 MONTHS   | 02/22/2007  | PAPER                |                                 |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/517,750             | CLEMENS, WOLFGANG   |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Hoang-Quan Ho          | 2818                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 20 November 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-9 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-9 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Response to Amendment*

Applicant's amendment dated November 20, 2006 in which claims 4 and 6 – 7 were amended, no claim was cancelled, no claim was withdrawn, and no claim was added has been entered of record.

### *Response to Arguments*

Applicant's arguments filed November 20, 2006 have been fully considered.

Applicant's arguments, see pgs. 4 – 7, with respect to the rejection of claims related to Heeger reference have been fully considered but they are not persuasive. The citation of Example 6 from Heeger states: "MEH-PPV is cast onto a film of pure UHMW-PE which has been stretched to a moderate draw ratio (e.g. draw ratio>20, Reference 11)." The examiner asserts from such passage, MEH-PPV is a separate layer that was casted onto another layer, of such film of pure UHMW-PE. Therefore, UHMW-PE has a separate status as being a substrate and/or underlayer, and MEH-PPV is applied on top of. The citation to Reference 11 is in regards to the draw ratio of the UHMW-PE and does not imply that MEH-PPV is blended with UHMW-PE from Reference 11 for which applicants may have overlooked. Also to note, par. 0099, Example 5, above from Example 6 in Heeger teaches that it is known for MEH-PPV to be onto a substrate.

Applicant's arguments, see pg. 7, with respect to the rejection of claims related to Bradley reference have been fully considered but they are not persuasive. Assuming arguendo that Bradley does not explicitly teach that the plastics stretched would be advantageous for organic electronic components, Bradley does teach that it is known in the art to have the plastics stretched. Combined with the other references cited, for which those plastics are used for organic electronic components, are therefore valid because they share the same plastics used.

Applicant's arguments, see pg. 7, with respect to the motivation related to "enhance the covered area of the substrate or underlayer" have been fully considered but they are not persuasive. Stretching of any material is inherent to cause a given object to cover more area than the original shape and/or size. In response to applicant's argument, inter alia, that "adding a layer to increase the charge carrier mobility within the functional layer", a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 5 is rejected under 35 U.S.C. 102(b) as being anticipated by Heeger et al. (U.S. Patent App. Pub. No. 2002/0022284), hereinafter as Heeger.

Regarding claim 5, par. 0102 of Heeger teaches a method of increasing the charge carrier mobility of a conducting or semiconducting layer of organic material, wherein the conducting or semiconducting layer is formed on an undersurface comprising an oriented, stretched (well-ordered) plastics film. Heeger teaches that such OLEDs are fabricated on such substrates and are interconnected to a display by transistors on the same substrate.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heeger et al (U.S. Pat. Pub. 2002/0022284) in view of Hagler et al (Phys. Rev. B, vol. 44, no. 16).

Regarding claim 1, par. 0102 of Heeger teaches a substrate and/or underlayer (UHMW-PE) of an electronic component (organic light emitting diode), which substrate or underlayer is to be coated with an organic functional layer (MEH-PPV), wherein said substrate or underlayer comprises a partially crystalline and/or axially stretched (well-

ordered) (oriented) plastics film such the orderliness of the plastics film enables the application of the functional material thereto in the form of a well-ordered layer (a light emitting diode emits polarized light, the MEH-PPV layer is also oriented).

The axially stretched limitation is not disclosed by Heeger, which indicates that the same axially stretched as that used in Hagler with respect to the copolymer MEH-PPV-PE (page 8654, col. 1, lines 4 – 14 and col. 2, lines 1 – 2 “the draw axis”) is used for the UHMW-PE substrate. This allows for polarized light.

Claims 2 – 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heeger et al (U.S. Pat. Pub. 2002/0022284) in view of Hagler et al (Phys. Rev. B, vol. 44, no. 16) and in further view of Bradley (J. Phys. D: Appl. Phys., vol. 20).

Regarding claim 2, Heeger and/or Hagler teaches a substrate as defined in claim 1, but fails to teach wherein the plastics film is at least partially crystalline and/or biaxially stretched. Bradley teaches that it is known in the art to provide a monoaxial stretching of a polymeric film (page 1393, col. 1, lines 5 – 38). Also, one having ordinary skill in the art in the area of polymeric films would know that films could also be biaxially stretched. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the device of Heeger and/or Hagler with the plastics film stretched, in order to increase area covered.

Regarding claims 3 and 8, Heeger and/or Hagler teaches a substrate as defined in claim 1 and 2, but fails to teach wherein the plastics film is monoaxially or biaxially stretched. Bradley teaches that it is known in the art to provide a monoaxial stretching of a polymeric film (page 1393, col. 1, lines 5 – 38). Also, one having ordinary skill in the art in the area of polymeric films would know that films could also be biaxially stretched. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the device of Heeger and/or Hagler with the plastics film stretched, in order to increase area covered.

Regarding claim 4, Heeger and/or Hagler teaches a substrate as defined in claims 1 – 3 or 8, wherein the plastics film is selected from any of the group consisting of isotactic polypropylene, polyamide, polyethylene, or polyethylene terephthalate (MEH-PPV as cited in Heeger/Hagler references).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heeger in view of Wakita et al, (U.S. Patent No. 5,546,889), hereinafter as Wakita.

Regarding claim 6, Heeger does not explicitly teach claim 6 limitations, but Wakita teaches that it is known in the art for the use of a substrate and/or underlayer as defined in any one of claims 1 or 5 for the production of an OFET (Col. 1, lines 10 – 14, col. 12, lines 42 – 53), in order to broaden the advantageous of mobility characteristics in other devices other than LED.

Claim 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakita in view of Heeger and further in view of Hagler.

Regarding claim 7, Wakita teaches an organic field effect transistor (OFET), a semiconducting layer of organic material, (MEH-PPV; Col. 12, lines 42 – 53) the semiconductor layer exhibiting a charge carrier mobility of  $\mu > 10^{-3} \text{ cm}^2/\text{Vs}$  (Col. 12, line 53), however, may not explicitly teach the rest of the claimed limitations. Heeger and Hagler teaches that it is known in the art to provide a substrate or an underlayer (UHMW-PE) which comprises a partially crystalline and /or axially stretched (well-ordered plastics film) and above and on that substrate or underlayer.

The axially stretched limitation is not disclosed by Heeger, which indicates that the same axially stretched as that used in Hagler with respect to the copolymer MEH-PPV-PE (page 8654, col. 1, lines 4 – 14 and col. 2, lines 1 – 2 “the draw axis”) is used for the UHMW-PE substrate, in order to broaden the advantageous of mobility characteristics in other devices other than LED.

Regarding claim 9, Wakita teaches the use of a substrate and/or underlayer as defined in claim 4 for the production of an OFET (see claims 4 and 7 rejections in combination).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

This action is a **final rejection** and is intended to close the prosecution of this application. Applicant's reply under 37 CFR 1.113 to this action is limited either to an appeal to the Board of Patent Appeals and Interferences or to an amendment complying with the requirements set forth below.

If applicant should desire to appeal any rejection made by the examiner, a Notice of Appeal must be filed within the period for reply identifying the rejected claim or claims appealed. The Notice of Appeal must be accompanied by the required appeal fee.

If applicant should desire to file an amendment, entry of a proposed amendment after final rejection cannot be made as a matter of right unless it merely cancels claims or complies with a formal requirement made earlier. Amendments touching the merits of the application which otherwise might not be proper may be admitted upon a showing

a good and sufficient reasons why they are necessary and why they were not presented earlier.

A reply under 37 CFR 1.113 to a final rejection must include the appeal from, or cancellation of, each rejected claim. The filing of an amendment after final rejection, whether or not it is entered, does not stop the running of the statutory period for reply to the final rejection unless the examiner holds the claims to be in condition for allowance. Accordingly, if a Notice of Appeal has not been filed properly within the period for reply, or any extension of this period obtained under either 37 CFR 1.136(a) or (b), the application will become abandoned.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang-Quan Ho whose telephone number is (571) 272-8711. The examiner can normally be reached on Monday - Friday, 9 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2818

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HQH  
February 15, 2007

*Andy Hwang*  
Andy Hwang  
Primary Examiner